

Neal A. Krawetz

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Education

- Ph.D., Computer Science. May 1998. Texas A&M University. Dissertation: *Investigation into Protein Folding Prediction of Helices Using Techniques in Computer Science*.
- B.A., Computer and Information Science. June 1992. University of California, Santa Cruz.
- Amateur Radio Operator: KB6JVJ, Technician Class (Tech+). 1985-Present.

Special Skills

Knowledge strength areas:

- Computer security: Software, network, computer forensics, file format forensics, digital photo analysis, profiling, cryptography, analysis, auditing and penetration, exploits and solutions.
- Artificial Intelligence: Neural Nets, Fuzzy Logic, Bayesian systems, and Genetic Algorithm.
- Computer networking: ISO OSI model, architectures, systems, and programming.
- Software: Research, architecture, design, and development.

Experienced Programmer with the following:

- C, C++, Java, Perl, PHP, ASP, JavaScript, as well as many others.
- Scripting languages: Unix shell (sh, csh, tcsh, bash, dash, ksh), REXX, DOS batch.
- Meta scripts: HTML, CGI programming.

Knowledgeable with the following operating systems:

- Microsoft Windows: Vista, Windows .
- Unix: BSD and System V variants: Linux, BSD.
- Macintosh: MacOS X.
- Older operating systems: Windows 95-XP, OS/2, MacOS 9, SunOS, Solaris, IRIX, and HPUX.

Experience

October 2002 – present: **Consultant**, Hacker Factor, P.O. Box 270033, Fort Collins, CO 80527. Perform contract tasks including computer security analysis, recommendations, training, research and development. Projects include evaluating compromised systems, auditing networks and services, developing anti-anonymity and cryptographic technologies, and designing novel forensic and profiling methods. Clients have included multinational government agencies, Fortune-500 corporations, US government agencies, financial institutions, and computer security providers.

1986-present: **Part-time technical contractor**, K-Comm (Krawetz Communications), P.O. Box K, Sunnyvale, CA 94087. Programmer, technician, network administrator, and system administrator for a radio repeater site in California that hosts telecommunication customers, including broadcast radio, telephone providers, Internet Service Providers (ISPs), and a TV station.

2001-2003 and 2011-present: **Technical reviewer** for IEEE. I review books and prepublication research papers on the topics of networking, security, and privacy.

2005-2009: **Software Developer**, VMC, Volt Technical Services, P.O. Box 13500, Orange, CA 92857. Architect and develop software solutions for Hewlett-Packard's Open Source Program Office. Develop tools for identifying of open source licensing issues and automated evaluation of open source projects. Architect and primary developer for HP's open source project FOSSology (<http://sourceforge.net/projects/fossology/>): wrote over 95% of source code, designed and created scheduler, all analysis engines, and modular user interface.

1999-2002: **Software Engineer** and **Software Architect** at Hewlett-Packard Company (Consumer Electronic Solutions Division, 825 14th Street SW, Loveland, CO 80537 and Remote Support Technology Lab, 3404 E. Harmony Rd., Fort Collins, CO 80528). My duties included designing and implementing secure communication systems that bridged between HP and its clients, developing a server system for a consumer-level home appliance, and evaluating ISPs for server hosting.

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Patents

- *Discovering Software Code Subject to Licenses*. Krawetz N. Filed: USPTO #2070294179, February 2007.
- *Data Management System and Method: Method to packetize total system update into small parts and reassembling on the target*. Krawetz N, Schwartz J, Thayer J. Patent No. 7,296,084. Submitted June 2002, awarded November 13, 2007.
- *System and Method for Managing Information Requests: Filtering of web URLs and HTTP content*. Krawetz N. Filed: USPTO #20030225897, May 2002.
- *Appliance Security Model System and Method: Break 1 Get 1 Solution*. Krawetz N, Schwartz J. Filed: USPTO #20030084352, February 2002.
- *System and Method for Secure Data Transmission: Encrypted data transfers without using certificates*. Krawetz N. Filed: USPTO #20030072454, February 2002.
- *System and Method for Secure Data Transmission: Encrypting sensitive information using an unstored PIN*. Krawetz N. Filed: USPTO #20030084301, February 2002.
- *System and Method for Controlled Access: Sliding window password to provide pseudo randomized password*. Krawetz N, Schwartz J. Filed: USPTO #20030084315, February 2002.

Publications

- Krawetz, N., *Ubuntu: Powerful Hacks and Customizations*. Wiley Publishing, April 2010, ISBN 0-470-58988-4.
- Krawetz, N., *Hacking Ubuntu: Serious Hacks Mods and Customizations*. Wiley Publishing, April 2007. ISBN 047010872X.
- Krawetz, N., *Introduction to Network Security*. Charles River Media, Thomson Delmar Learning, 2006. ISBN 1584504641.
- *Point-of-Sale Vulnerabilities*, Krawetz N. Hacker Factor Solutions <hackerfactor.com/papers/cc-pos-20.pdf>. Limited release April 2006. Public release August 2007.
- *Online Impersonations: No Validation Required*. Krawetz N. *Security Focus* <www.securityfocus.com/columnists/441>, April 20, 2007.
- *Laptop Losses and Phishing Fruit Salad*. Krawetz N. *Security Focus* <www.securityfocus.com/columnists/435>, February 15, 2007.
- *Who is "n3td3v"?* Krawetz N. Hacker Factor Solutions, <hackerfactor.com/papers/who_is_n3td3v.pdf>, October 2006.
- *A Guide To Building Secure Web Applications and Web Services*. Open Web Application Security Project (OWASP) <www.owasp.org/documentation/guide/guide_downloads.html>. Krawetz N contributing author, June 2005.
- *Anti-Phishing: Page Encoding*, Krawetz N. Hacker Factor Solutions, April 2005.

Public Presentations

- *Online Privacy: Search Engines You Don't Know About*. Digital Gunslingers and Ethical Entrepreneurs, Fort Collins, CO, May 2011.
- *Keyboard Forensics: You Are What You Type*. Fort Collins Internet Professionals, Fort Collins, CO. October 2010.
- *A Picture's Worth: Digital Image Analysis*. US Department of Defense Cyber Crime Conference, St. Louis, MO. January 2010.
- *Htaccess Security*. Fort Collins Internet Professionals, Fort Collins, CO. December 2009.
- *A Picture's Worth: Digital Photo Forensics*. Lockdown, University of Wisconsin, Madison. July 2008.
- *A Picture's Worth: Image Analysis*. Black Hat DC, Washington, DC. February 2008.
- *A Picture's Worth: Image Analysis and Forensics*. Black Hat Briefings, Las Vegas, NV. August 2007.
- *You Are What You Type: Non-Classical Computer Forensics*. Black Hat Briefings, Las Vegas, NV. August 2006.
- *Nobody's Anonymous: Tracking Spam and Covert Channels*. Black Hat Briefings, Las Vegas, NV. July 2004.
- *Evil with Email: Evaluation of an Insecure Network Service*. 1st Annual Pueblo County Information Security Awareness Week Seminar, Pueblo, CO. February 2004.

Professional Services

- 2007-present: **Founder and manager** of the *Computer Security and Forensics* group on LinkedIn. At over 4000 members, this is the second largest LinkedIn group for computer security and second largest for computer forensics. All group members are vetted for active involvement in this field.
- **Expert witness**, *Beyond Systems, Inc. v. Keynetics Inc., et al.*, United States District Court, District of Maryland, Southern Division, Case No. 8:04-cv-00686, 2007.
- **Expert witness**, *Gordon v. Virtumundo*, United States District Court, Western District of Washington, Seattle, Case No. CV06-0204JCC, 2007.

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Awards

- November 2008: Department of Defense Cyber Crime Center, *3rd Annual Forensic Challenge*. Team Hacker Factor came in third place out of 199 teams. I was also the only individual-team in the Top 5; all other teams in the Top 5 consisted of multiple people. Although one academic and one military group had higher scores, I beat out all other groups, including every government and commercial team. I also had a faster turnaround time: 55 days faster than the 1st place winner.
- November 2007: Department of Defense Cyber Crime Center, *2nd Annual Forensic Challenge*. Team Hacker Factor came in third place out of 126 teams. The team had a higher score than every military, government, and commercial team.
- November 2006: Department of Defense Cyber Crime Center, *1st Annual Forensic Challenge*. Team Hacker Factor came in fifth place out of 140 teams. The team had a higher score than every military and government team.